

REMARKS – General

In the above Amendment, Applicant has re-structured the Application to conform to recognized format, and re-ordered the presentation of the Specification so as to present a clearer document. In some areas, additional explanations have been made to help the reader understand the problems that can occur with radio frequency measurements of soil that might impair measurement accuracy.

Also Applicant has rewritten all claims to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over prior art.

Priority:

1. Cross-Reference to provisional application 60/458,896, filed 03/31/2003 has been added.

Claim Objections:

2. Claims have been rewritten to simplify claims and claim dependency.
3. Claim 4 has been deleted.

Claim Rejections:

4. It is respectfully submitted that Claim Rejection – 35 USC § 102 has been overcome by careful examination of Geritt – US 4,481,474.
5. Gerrit teaches the use of an “essentially conical tip made of plastic, preferably polytetrafluorethylene”, the purpose of which is to simply permit the measuring rod to be more easily driven into the ground. This tip is no different from the point of a nail, or other cylindrical object that is designed to be driven into a yielding substance. In fact, the tip is described as being plastic, and is therefore non-conducting. Thus, it performs no measurement related function.

My Soil Penetrating Electrode With Conical Taper is designed so the whole active contacting surface is the conical area, and thus by being conical will assure the necessary intimate contact, and fixed contact area with the soil that is necessary for accurate measurement.

Gerrit Figs. 1 and 2 show a cylindrical shape over the whole length of the metallic rod. There is no undercut area that is electrically involved with the measurement characteristics of the device. The undercut area shown at the **top** of item **7** in Fig.2 does not provide any benefit to assure constant contact of the measuring surface area of the electrode with the soil. Gerrit has no explanation for this undercut area. At most, it appears to have been undercut to allow a good grip on the tip for removal by the operator when replacement is required.

My reading of Gerrit reveals no mention of the use of item **4** as a depth of penetration gauge. It is (according to Gerrit) "a conducting metallic rod-shaped probe" consisting of "a metallic tube and is covered with a layer of insulating material with the exception of a small portion **5** near the end".

Thus the active contact area of Gerrit's probe is cylindrical in shape, and depends upon accurate insertion in the soil to avoid side forces that will cause the hole to be an oval shape, and consequently reduce the active measuring surface area. **This is exactly the problem that my invention solves.**

Looking again at Fig. 2, I see no undercut on shaft **4**. Shaft **4** is an insulated metallic tube that completely fills the hole over its whole length. There is no loose soil that can fall into the hole. I respectfully disagree with the Examiner that there is any special feature to the probe that specifically improves the intimate contact with the soil, or assures a constant soil contact area, as are the attributes of my Soil Penetrating Electrode with Conical Taper.

6. & 7. With respect to 35 U.S.C. 103(a), Claim 4 has been deleted.

Conclusion:

8. The prior art not relied on but considered pertinent to the Applicant's disclosure shows electrode probes with conical tapered tips on cylindrical rods with a short conical part in comparison to the rod length, and simply there for ease of insertion into the soil. All these probes rely on the cylindrical rod length (which is the majority of the length) for soil contact. None of these citations show the novel advantage of making the total soil contact area in the form of a conical section. Applicant respectfully disagrees with Examiner that any of these cited prior art inventions have an undercut shoulder that performs the same function as is performed by the same in my invention. (Lagmanson, US 6,404,203, Campbell, US 5,479,104, and Hocking, US 6,615,653). My invention has recognized the advantages of making the total electrode contact area in the shape of a shallow angle cone so as to improve soil electrical contact quality and provide a constant contact area that is necessary for accurate radio frequency measurements.


CONCLUDING:

For all the above reasons, Applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore I submit that this application is now in condition for allowance, which action Applicant respectfully solicits.

Conditional Request for Constructive Assistance:

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,


John W. Lundstrom

Applicant Pro Se

Encl:

1. Amended appl'n. Nr. 10/808,838. (clean text)
2. Information Disclosure Statement by Applicant

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